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ABSTRACT

An evaluation assessed the impact of the 40- and 15-hour driver alcohol education (DAE) program models on attitudes, beliefs, and behaviors of driving while intoxicated (DWI) first offenders in Massachusetts. The 40-hour program evaluation studied 306 clients from 31 DAE programs; the 15-hour study group consisted of 207 clients in 23 DAE programs. The survey instrument measured attitudinal, affective, and behavioral variables and included mood and personality measures, degree of alcohol involvement, and quantity/frequency of drinking behavior. It included scales constructed to measure the programs' effect on clients' attitudes toward and beliefs about drinking, self-help groups, and drunk driving. Results indicated that more positive changes in attitudes and beliefs about drinking and driving occurred among clients in the 40-hour program. The 40-hour clients were more likely to believe in the harmful consequences of drinking and driving; were more likely to believe that they would be in an accident, drive recklessly, and be stopped by the police if they drank five drinks in 2 hours; possessed more favorable attitudes toward Alcoholics Anonymous and Mothers Against Drunk Driving; and showed more significant changes in negative attitudes and beliefs in regard to drinking and driving between intake and program completion. (Twelve references, 10 tables, and mean and t-test scores are appended.) (YLB)

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An Evaluation of First Offender Driver Alcohol Education Models: 40 Hours Versus 15 Hours

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Executive Summary

Overview of First Offender DAE Evaluation

The first offender driver alcohol education (DAE) programs have undergone major changes since July 1, 1987. Prior to this time, the driver alcohol education program was a 15 hour program consisting of three diagnostic and eight education sessions. On July 1, 1987, a 40 hour program was implemented consisting of a 2 hour assessment, 32 hours of group educational sessions, 4 hours of Alcoholics Anonymous attendance, and one 2 hour Mothers Against Drunk Driving forum. This change intensified the nature and scope of the DAE program.

A comprehensive evaluation was conducted to assess the program impact of the 40 and 15 hour DAE program models on attitudes, beliefs, and behaviors of DWI first offenders. The study was sponsored by the Department of Public Health and conducted by Health and Addictions Research, Inc. The 40 hour program evaluation took place between April 1, and May 6, 1988; 306 clients from 31 DAE programs took part in the study. The 15 hour program evaluation was completed between April and June of 1987. The 15 hour study group consisted of 207 clients in 23 DAE programs.

The survey instrument measured attitudinal, affective and behavioral variables and included mood and personality measures, degree of alcohol involvement and quantity/frequency of drinking behavior. The survey also included scales constructed to measure the programs' effect on clients' attitudes and beliefs toward drinking, self-help groups, and drunk driving.

A summary of characteristics of first offender DAE clients showed that the 40 hour group clients were young, almost three-quarters (70%) were under 35 years, 95% were white, and the majority (82%) were male. Over half had never been married and most clients reported they were employed full-time (79%). Almost one-third (31%) had been arrested for offenses other than drunk driving, about half (42%) used marijuana and one-quarter (24%) used cocaine in the year prior to the study. Clients in the 15 hour study group were mostly male (85%), white (92%) and had a mean age of 32 years. Half were never married and three-quarters were employed full-time. Four out of 10 (40%) had been arrested for offenses other than drunk driving. Marijuana was used by 30% of clients and cocaine by 17% in the past year.

Results

* More positive changes in attitudes and beliefs about drinking and driving occurred among clients in the 40 hour first offender DAE program than in the 15 hour DAE program.

* At the completion of the 40 hour model, clients were significantly more likely to believe in the harmful consequences of drinking and driving than at the beginning of the program.

* The 40 hour clients were more likely at program completion than program intake to believe that they would be in an accident, drive recklessly, and be stopped by the police if they drank 5 drinks in 2 hours.

* Both the 40 hour and the 15 hour clients displayed significantly more negative attitudes toward drinking large quantities of alcohol and more positive attitudes toward drinking nonalcoholic beverages as a result of participation in the DAE programs.

* The 40 hour group clients possessed more favorable attitudes toward Alcoholics Anonymous and Mothers Against Drunk Driving at program completion than at intake.

* A substantial decrease in the amount of drinking occurred between arrest for drunken driving and program intake for both the 40 and 15 hour clients. The 40 hour clients, however, reported more alcohol consumption at intake and program completion than did the 15 hour clients.

* The 40 hour clients showed more significant changes in negative attitudes and beliefs toward drinking and driving between intake and program completion. However, they had more impaired attitudes and behaviors to begin with in comparison to the 15 hour clients.

Study results showed that at the beginning of the DAE program the 40 hour clients were more impaired than the 15 hour clients in their alcohol involvement and their attitudes and beliefs toward drinking and driving. One explanation may be that highly visible media campaigns against drunken driving have been successful and in fact fewer people are drinking and driving, so that only the more seriously impaired drinking drivers are being detected and apprehended.

An Evaluation of First Offender Driver Alcohol Education Program Models: 40 Hours versus 15 Hours

Drunken driving contributes disproportionately to highway accidents and fatalities. The number of drunk driving casualities is staggering. Between one-third and one-half of all highway fatalities are the result of excessive drinking (DHHS, 1987). Because drunken driving is a serious public health problem, both education and rehabilitation programs are used to reduce its occurrence.

Massachusetts has conducted driving while intoxicated (DWI) education and rehabilitation programs for first offenders drunken drivers since 1975. The original driver alcohol education (DAE) programs in Massachusetts were modeled after the first school for drunken drivers in the nation in Phoenix, Arizona (Stewart and Malfetti, 1971). The Arizona program provided education and rehabilitation programs to meet the needs and characteristics of DWI offenders. Throughout the 1970s and early 1980s, the "typical" curriculum of DWI programs, modeled after the Phoenix program, consisted of two three-hour group meetings that included lectures and/or films, discussions of group members' specific drinking and driving problems, oral and written exercises requiring self analysis of drinking habits, and assignment of relevant reading material (Klajner, Sobell & Sobell, 1984). The DWI programs used education and rehabilitation to change the behavior of drunken driving offenders.

In Massachusetts, individuals arraigned for driving under the influence of liquor (DUIL) could participate in an eight week driver alcohol education (DAE) program in lieu of fines or imprisonment. Enrollment in a DAE program also reduced the mandatory one-year revocation of the driver's license to a thirty day suspension.

The eight week Massachusetts program for first offenders was based on the Phoenix model. It consisted of three diagnostic sessions designed to assess the extent of an individual's alcohol use, and eight weekly didactic educational sessions, totalling fifteen hours of contact. At program completion continuation in a treatment program was recommended for clients diagnosed as alcohol abusers or dependents. The primary goal of the DAE program was to eliminate or reduce recidivism of drunken driving (DOA, 1983). To reduce the likelihood of DUIL arrest, the programs provided education about alcohol use and abuse, and the dangers of drinking and driving to motivate clients to evaluate their alcohol use and initiate behavior change. The 8 week, 15-hour program continued in this format for 12 years and was approved by the Department of Public Health, Division of Alcoholism.

On July 1, 1987, in response to the belief that attitude change and subsequent behavior change in drunken drivers required a more extensive program, a 40-hour program for first offenders was implemented. The program in Massachusetts is now among the most stringent in the nation. It consists of a two-hour assessment, 32 hours of group education sessions, four hours of Alcoholics Anonymous (AA) attendance, and one two-hour Mothers Against Drunk Driving (MADD) forum. The program is 16 to 21 weeks in length, depending on the length of the weekly sessions. This change intensified the nature and scope of the DAE program. Three goals are associated with the 32 hours of group education programming: 1) to assist clients to recognize their problematic drinking habits and the dangers of drinking and driving; 2) to encourage clients to establish appropriate goals with respect to alcohol use and drinking and driving; and 3) to help clients to implement their personal goals and to change behavior.

In order to assess the differential effects of the 15 and 40 hour DAE programs on clients' attitude and behavior relating to alcohol use and the hazards of drinking and driving, two evaluations of DAE programs were conducted. Data collection for the evaluation of the 15 hour program was conducted in the Spring of 1987, before the implementation of the 40 hour program on July 1, 1987. Data collection for the evaluation of the 40 hour program was conducted in the Spring and Summer of 1988. This report summarizes the findings from these two studies.

Methods

Study Group Selection

15 hour DAE Evaluation. Data on FY 1987 admissions from the Division of Substance Abuse Management Information System (MIS) were used to determine sample sizes for 31 DAE programs licensed by the Department of Public Health. Approximately 2% of the yearly admissions from each participating agency was estimated. One program with 30 or more admissions per week surveyed 3 classes, eight agencies with 16-21 admissions per week surveyed 2 classes and fourteen agencies with 15 or fewer admissions per week surveyed 1 class. Thus, a total of 34 classes were surveyed by 23 agencies (75%). Reasons for agency non-participation were understaffing and inability of staff to travel to Boston to attend training sessions.

Surveys were completed by 381 of the 485 (78%) clients eligible to participate in the 15 hour study. Reasons for non-participation (N=104) included choosing not to participate, absences, dropouts or incomplete identification field on the survey form. Complete attitude change measures at intake[1] and program completion were available for 207 clients--54% of the study participants (N=381).

[1] Intake refers to the beginning of the program.

40 hour DAE Evaluation. Programs with classes (English-speaking) beginning between April 1, 1988 and May 6, 1988 were eligible to participate. Twenty nine agencies submitted information on the number of classes (93) beginning during this time period. In order to establish a sample size of approximately 700 participants, 60 classes were systematically selected for study participation. The final sample consisted of 27 agencies (66% of total DAE agencies) and 51 classes. One agency had no classes selected and another dropped out when clients in the only study class for that agency chose not to participate. Reasons classes were dropped included; 1) the majority of clients chose not to participate (6 classes); 2) class structure hindered the use of survey procedures (2 classes); and 3) instructor preferred class not participate (1 class). During the survey administration 642 clients were eligible to participate in the evaluation, and surveys were completed by 516 (80%) of those clients at any point during data collection. Attitude change surveys at intake, middle of program and program completion were completed by 306 clients representing 59% of study participants (N=516).

In both the 15 and 40 hour studies, classes were invited to participate and were presented with an informed consent agreement describing the requirements of study participation. Permission to review the clients' driving and arrest records three years after their entry into the DAE program was also requested. Individuals were free to refuse to participate at any point during the study. The 15 hour study clients signing consent forms were asked to complete a 20 minute survey at four different points in time; during Week 1, Week 2, Week 4, and Week 8 of class. The 40 hour study clients signed consent forms asking them to complete a 20 minute survey at three points in time: during Week 2, Week 8 and Week 15 or 20 depending on when the last class was scheduled.

Instruments

Several instruments were used to measure levels of alcohol involvement and consumption, mood and personality dimensions, and attitude and behavior change.

Levels of Alcohol Involvement. The Michigan Alcoholism Screening Test (MAST) is a 24-item self-report assessment instrument that focuses on alcohol consumption and consequences (Selzer, 1971). A weighted score of less than 5 indicates the absence of alcoholism, 5-6 represents possible alcoholism, and 7 or higher is presumptive evidence of alcoholism.

Quantity/Frequency of Alcohol Consumption. Levels of alcohol consumption were measured at intake and at program completion by asking four questions: 1) During the last four weeks on how many days did you drink any alcohol? 2) What was the greatest number of drinks that you consumed on one day during the last four weeks? 3) On how many days did you consume the greatest number of drinks indicated above? and 4) How many drinks did you usually have when you drank during the last four weeks? In addition, study participants responded to these items for the month prior to arrest. This format allowed measurement not only of quantity and frequency but also of both usual drinking and binge drinking in the month prior to arrest, at intake, and at program completion. This information was used to calculate the number of drinks in the month prior to arrest and at both intake and program completion.

Mood and Personality Measures. Mood and personality measures were used to determine the degree of client anger/hostility and defensiveness at the beginning of class. The Profile of Mood States (McNair, Lorr, Droppleman, 1971) measures different dimensions of affect or mood through a self-administered questionnaire consisting of 65 adjectives describing feelings and mood. The client rates feelings using a five-point scale

ranging from "Not at all" to "Extremely." Clients were instructed to indicate mood reactions during the week prior to the study on items measuring six dimensions of mood: 1) Tension-Anxiety, 2) Depression-Dejection, 3) Anger-Hostility, 4) Vigor-Activity, 5) Fatigue-Inertia, and 6) Confusion-Bewilderment. The dimension of interest in this evaluation was anger and hostility. The Psychological Screening Inventory (PSI) was developed as a brief mental health screening instrument consisting of 130 personal statements or items to be answered true or false (Lanyon, 1973). Items on the PSI comprise five separate scales: 1) Alienation, 2) Social Non-conformity, 3) Discomfort, 4) Expression, and 5) Defensiveness. A high score on the defensiveness dimension would suggest that the client was attempting to present himself in a particularly favorable light.

Attitude and Behavior Change. The DAE program evaluation utilized the framework of the Fishbein-Ajzen, Theory of Reasoned Action (Fishbein & Ajzen, 1975) to test the assumption that education will change attitudes and beliefs and attitude change will then influence behavior and behavior change. The model framework proposes a mechanism whereby new information (education) may enter cognitive systems and change attitudes. To test this assumption, attitude scales were developed to monitor change between intake and program completion. Attitude scales were constructed using anywhere from 4 to 10 statements, each requiring responses to an agree/disagree seven point scale. Groups of related items were combined to create scales that measured changes in attitudes and beliefs about drinking and driving, levels of drinking and consequences of drinking and driving, AA, and MADD. Scores were calculated so that the higher the score on the attitude scale, the more positive the attitude toward the behavior indicated on the scale.

Client evaluations of drinking behavior were assessed within the context of a specific situation. Five attitude scales were measured in the context of "being at a party with friends": 1) Attitude toward drinking a non-alcoholic beverage, 2) Attitude toward being high, 3) Attitude toward 6 or more drinks, 4) Attitude toward 5 drinks in 2 hours and 5) Attitude toward only one drink. Items were summed to create attitude scale scores. Higher scores indicated a more positive attitude toward the behavior.

Three attitude scales were developed to measure attitudes and beliefs toward Alcoholics Anonymous (AA), Mothers Against Drunk Driving (MADD) and toward drinking and driving. Eleven statements relating to opinions about AA, AA attendance, and AA philosophy were used to assess overall attitude toward attending AA. Items relating to opinions about MADD were examined (40 hour DAE study only). Ten items assessing general opinions about drinking and driving that prior studies (Massachusetts Department of Public Health, 1981; Melfetti and Simon, 1974) reported were sensitive to change between admission and discharge were included.

Two additional scales measured beliefs clients held about 1) consequences of drinking and driving and 2) beliefs clients held about friends' attitude toward their drinking and driving. Clients indicated on an unlikely-likely dimension how likely they were to experience each of six potential consequences after drinking 5 drinks in 2 hours and driving. These included 1) drive safely, 2) be stopped by police, 3) be in control, 4) have a minor accident, 5) drive drunk, and 6) drive recklessly. Items were summed yielding a score which measured clients' beliefs about the consequences of drinking and driving.

Beliefs about friends' attitude toward drinking and driving was assessed under the assumption (Fishbein, 1967, 1975) that in some situations the social expectation of friends may have a stronger influence on decisions to drink than the clients attitudes toward drinking. Four items measured beliefs about friends' attitude toward drinking 5 drinks and then driving. Clients responded on an unlikely-likely dimension to 1) friends disapprove, 2) friends expect me to drive, 3) friends stop me from driving, and 4) friends want me to ask them to drive.

Data Analysis

Data collected during intake[1] for the 15 hour DAE study included demographics, measures of alcohol involvement, mood and personality and attitudes and beliefs toward drinking and driving. Intake[1] data were collected during Weeks 1, 2, and 4 for the 15 hour DAE study, thereby reducing the study burden during any one week. In addition, it allowed for the assessment of client change during the initial phases of the program and for the development of baseline measures for outcome comparisons. Measures of attitudes, behaviors and beliefs toward drinking, driving, and AA, and levels of alcohol consumption were repeated at program completion (Week 8) to assess program impact.

In order to control for the potential influence of time and order of intake survey administration, a latin square design was utilized in which the three sets of intake instruments were administered in all possible orders. Each program administered the three parts of the intake instrument in a designated order. Analysis comparing demographics of clients completing surveys at each week showed no significant differences among those who completed surveys at week 1, 2 or 4.

[1] Intake refers to the beginning of the DAE program.

An analysis to determine whether levels of hostility/anger or defensiveness were affected by time in program (Week 1, 2, or 4) showed that neither the hostility/anger dimension (F=.34) on the POMS nor the defensiveness dimension (F=.65) on the PSI showed significant differences in scores between Weeks 1, 2, and 4. No significant differences existed on measures of client change during the initial phase of the 15 hour DAE program. Therefore intake data was collected only at week 2 for the 40 hour DAE study.

To control for testing effects, a group (N=161) of 15 hour DAE clients whose classes were not part of the study were asked to complete the same survey at program completion as the study participants had completed. The assumption is that the process of measurement (i.e., attitudes) may, in fact, change that which is being measured (Campbell and Stanley, 1963). An analysis of variance showed no significant differences on attitude scale scores between these two groups at program completion, demonstrating that repeated testing did not affect the responses of the study participants at the end of the program.

Data analysis was conducted on both the 15 hour DAE study group and the 40 hour study group participants who completed all surveys containing the attitude behavior change measures. Because of the pattern of missing data for items comprising the scale for the 15 hour study, group means were used to replace missing values for items with less than 10% missing. A comparison of mean scores of items prior to and after the assignment of means to the missing values showed no significant differences. Assigning the means to the missing items allowed for the inclusion of a large number of participants in the analysis.

The 15 hour DAE study group (n=207) and the 40 hour DAE study group (n=306) were compared on ten attitude/behavior change scales using paired

t-tests to determine the significance of change between intake and program completion for each group. A Bonferroni procedure-wise error rate adjustment was made due to the analysis of multiple scales for matched clients. Item analyses were conducted to determine how well the items correlated with the scales. Pearsons's correlation coefficients were between .46 and .89 at both intake and program completion indicating a high correlation between the items on the scale and the scale scores.

15 Hour Study Group (N=207)

A comparison of the 15 hour DAE study group (N=207) and those clients who did not participate in the study (N=104) showed that study participants were more likely to have been married (26% vs. 22%) and living with a spouse or equivalent (37% vs. 22%) than non-participants. A comparison of clients completing attitude change measures at each data collection week (N=207) and those not completing surveys at each week (N=174) indicated no significant differences between these groups on client characteristics (Table 1).

Using the Division of Substance Abuse Services MIS on clients in Driver Alcohol Education programs during FY'87 (N=21,027), comparisons were conducted to determine the study group's representativeness (N=207) to drunk drivers in first offender programs in Massachusetts. No significant differences emerged between groups from this comparison (See Table 2).

The clients who participated in the 15 hour evaluation were mostly male (85%), white (92%), and had a mean age of 32 years. Slightly more than half (54%) of the sample had never been married, and most clients (78%) reported that they were employed full time. The average education level was completion of the 12th grade and approximately 60% earned an annual income of less than $20,000. One-third (33%) lived with their

parents, while 37% indicated they lived with a spouse. The average Blood Alcohol Content (BAC) for those who agreed to take the BAC test at time of arrest was .18.

Four clients indicated that this was their second drunk driving arrest in the past six years. Four out of ten (40%) of those interviewed said they had been arrested in the past six years for offenses other than drunk driving. Self-reports of drug use indicated that three-fourths (76%) of clients had used marijuana during their life, and 30% had used it in the year prior to the study. Cocaine was used by almost half of the clients (45%) during their life, and 17% had used cocaine in the year prior to the study. The average age of clients' first drug or alcohol high was 16 years, with 60% indicating they were between 14 and 17 years of age when they first got high.

40 Hour Study Group (N=306)

A comparison of the 40 hour DAE study group (N=302) and those clients who did not participate in the study (N=126) showed that participants were more likely to be white (94% vs. 84%), employed full-time (79% vs. 65%) and educated (12.6 years vs. 11.9 years) than were non-participants. A comparison of clients completing attitude change measures at each data collection week (N=302) and those not completing surveys at each week (N=194) indicated no significant differences between these groups on client characteristics (Table 3).

Using the Division of Substance Abuse Services MIS data on clients in Driver Alcohol Education programs during FY'88 (N=18,894), comparisons were conducted to determine the study group representativeness (N=306) to DAE clients in treatment in FY'88. This comparison shows that the study group were slightly more likely to be female (18% vs. 14%), white (95% vs.

90%) and educated (13 years vs. 12 years) than were 1988 DAE clients (Table 4).

Comparisons between the 15 and 40 hour study groups showed few differences. The 40 hour study clients were more educated (13 vs. 12 years) and more likely to be living with a roommate than a spouse in contrast to the 15 hour study clients (Table 5).

The clients who participated in the 40 hour evaluation were mostly male (82%), white (95%), and had a mean age of 31 years. Over half (57%) had never been married, and most clients reported that they were employed full time (79%). The average education level was 13 years and approximately half (53%) earned an annual income of less than $20,000. One-third (31%) lived with their parents, while 29% indicated they lived with a spouse. The average Blood Alcohol Content (BAC) for those who agreed to take the BAC test at time of arrest was .17.

Thirteen (4%) study participants reported that this was their second drunk driving arrest in the past six years. Almost one-third (31%) reported they had been arrested in the past six years for offenses other than drunk driving. Self reports of drug use indicated that 69% had used marijuana during their life, and 42% had used it in the year prior to the study. Cocaine was used by nearly half (46%) the study participants during their life, and one-quarter (24%) had used cocaine in the year prior to the study. The average age of clients first alcohol high was 15 years and of those who reported using drugs over half (54%) reported they were between 14 and 17 years when they first got high. Over one-third (37%) indicated that they had not been high on drugs in their life.

Results

The results of the 40 hour and 15 hour program studies were compared in regard to clients' beliefs about the safety and consequences of drinking and driving, attitudes toward heavy drinking, drinking behavior, and attitudes toward Alcoholics Anonymous and Mothers Against Drunk Driving at program intake, week 8 (program completion for the 15 hour program) and week 15/20 (program completion for the 40 hour program).

Changes in Beliefs about the Consequences of Drinking and Driving

Of the ten scales measuring attitude change, the 40 hour group showed the greatest amount of change on the scale measuring beliefs about the consequences of drinking and driving for both the first and the second half of the program. The 15 hour group showed no significant change in these beliefs between program intake and completion (see Tables 8 and 9). By the end of the program, the clients in the 40 hour group were less likely to believe that after drinking five drinks in two hours they would be able to drive safely or be in control. They were more likely to agree that they would be in an accident, drive recklessly, and be stopped by the police. (See Appendix for individual item means and t-tests). However, the 40 hour group clients started with more positive beliefs that drinking did not affect their driving than did clients in the 15 hour group. The 40 hour group's mean scale score at intake was 25.7 versus 20.7 for the 15 hour group, but both groups were similar at program completion (21.1 versus 21.4).

The scale that measured general beliefs about drinking and driving also showed significant change in the desired direction for the 40 hour, but not the 15 hour, group. At program completion the 40 hour group was significantly less likely to agree that some people could drink and drive safely after 1, 2, or 4 drinks, that DUIL arrests were due to bad luck or

that DUIL penalties were too severe. (See Appendix for individual item means and t-tests). Again, 40 hour group clients initially held more positive beliefs about a person's ability to drink and drive safely than did clients from the 15 hour group (40 hour group mean scale scores at program intake and completion were 30.7 and 27.4 respectively, versus 26.6 and 25.8 for the 15 hour group). Beliefs about friends' attitudes towards the client's drinking and driving behavior showed no change over time for either the 40 or 15 hour groups, although the 40 hour group clients did indicate that friends would be more likely to stop them from driving after five drinks at program completion versus intake.

Attitudes Toward Heavy Drinking

Both the 40 hour and the 15 hour groups displayed significantly more negative attitudes toward heavy drinking at program completion than at program intake. The greatest amount of change in attitude toward drinking six or more drinks at a time occurred in the second half of the 40 hour program as opposed to the first eight weeks of the 15 hour program (see Tables 8 and 10). In comparison to their answers at intake, the 40 hour group clients reported at program completion that they would be more likely to injure themselves or not be in control after six drinks. At program completion the 15 hour group clients reported they would be less likely to drink six or more drinks at a time.

At program completion the clients in the 40 hour group stated that they were less likely to drink five drinks in two hours and that their driving would be impaired if they drank in this manner, whereas the 15 hour group showed no significant change on this scale. Once again, mean scale scores indicated that the 15 hour group clients were somewhat less likely to engage in this behavior initially (see Tables 8 and 9).

Both groups developed a more positive attitude toward drinking non-alcoholic beverages (specifically gingerale) in a party setting, indicating that such behavior was good or pleasant. Neither group changed its views on the desirability of drinking only one drink at a party as opposed to a greater amount of alcohol. Apparently for those clients who had stopped drinking, one drink at a party was perceived to be harmful. Nor did either group change its overall attitude toward being high. It was unclear, however, how clients were interpreting the meaning of the word "high". The items comprising that scale did not specify any particular substance (i.e., alcohol, marijuana, etc.). Since 30% of the 15 hour group and 42% of the 40 hour group had used marijuana in the past year it was difficult to determine how clients were responding to these items.

Drinking Behavior

The greatest drop in the percentage of clients drinking, as well as in the quantity of alcohol being drunk, occurred between arrest and program intake for both the 40 and 15 hour programs. Another smaller decline occurred between intake and program completion (see Table 6). At all time points, a greater percentage of the clients in the 40 hour group were drinking a greater quantity of alcohol than were the 15 hour group clients.

In the month prior to arrest, the average number of drinks was similar for both groups, 68 for the 40 hour group and 65 for the 15 hour group. In the month prior to program intake, however, more clients in the 40 hour group reported they were still drinking than clients in the 15 hour group (86% vs. 77%). In addition, those in the 40 hour group who were drinking during the month prior to intake reported an average of 37 drinks per

month in contrast to the clients in the 15 hour group who averaged 26 drinks per month during this time. At week 8 (program completion for the 15 hour study group) 74% of the clients in the 15 hour study group remained constant at 25 drinks per month, while the 40 hour group showed little change between intake (37 drinks) and week 8 (40 drinks) of the DAE program. However, fewer clients in the 40 hour group were drinking at program completion compared to the percentage of 40 hour clients drinking at intake (79% vs. 86%). Those who were drinking at program completion (week 15/20) reported an average of 34 drinks per month, half their reported consumption in the month prior to arrest.

The Michigan Alcoholism Screening Test (MAST) also indicated that the 40 hour group presented more problematic drinking (see Table 7). A smaller proportion (46% vs. 53%) of the 40 hour group scored in the non-alcoholic range than did the 15 hour group. The Blood Alcohol Content at time of arrest for both DAE groups was similar: an average of .17 for the 40 hour group and .18 for the 15 hour group.

Attitude toward AA and MADD

The 40 hour group displayed a more positive attitude toward Alcoholics Anonymous (AA) and Mothers Against Drunk Driving (MADD) at program completion than program intake. Increased familiarity with these groups, greater comfortability with AA leaders, and a belief that MADD was beneficial contributed most to these changes. The 15 hour group clients did not change on the scale overall, but did indicate a greater familiarity with AA and a view that it was pleasant at program completion. The 15 hour group did not attend a MADD forum and began with a more positive attitude toward AA than did the 40 hour group.

Discussion

The evaluation of the 40 and 15 hour Driver Alcohol Education programs found that the 40 hour group displayed significantly more positive changes in attitudes and beliefs about drinking and driving than did the 15 hour group. Overwhelmingly, the 40 hour group showed more change between intake and program completion than did the 15 hour group on beliefs about the negative consequences of drinking and driving. The 40 hour group clients also held less positive beliefs about a person's ability to drink and drive safely. In response to items referring to heavy drinking, the 40 hour group was more likely to believe in the negative consequences of heavy drinking than was the 15 hour group. Even though significant changes in attitudes and beliefs toward drinking and driving were more pronounced for the 40 hour than the 15 hour group, alcohol consumption was higher among the 40 hour group at arrest, intake and program completion. In addition, more clients in the 40 hour group drank at each time period. Each group had reduced its alcohol consumption by half at the end of the program.

Influencing behaviors, particularly those behaviors associated with the consumption of alcohol, is difficult. Attitude change must precede behavior change. The first step toward behavior change is a clients' acceptance of negative attitudes and beliefs about drinking and driving. Once these beliefs are internalized, clients will question behaviors antithetical to their attitudes and beliefs. The occurrence of desired changes in clients' attitudes and beliefs is indicative of desired changes in behavior. This assumption will be tested by review of the clients' arrest records for DUIL in the three years following program completion.

Significant positive changes in attitude toward AA and MADD were

encouraging. These components help clients to re-examine their drinking and understand the self-help process and the emotional impact that drinking and driving can have on victims and their families.

The 40 hour group displayed more impaired attitudes and beliefs toward drinking and driving, and heavier drinking at the beginning of the program than did the 15 hour group. Thus, more opportunity existed for change to occur for the 40 hour group. Mean scores at program completion for the 40 hour group resembled the mean scores at intake for the 15 group. Several explanations of these differences are possible. One is that because everyone in the 40 hour program spent the same amount of time in treatment, they were less defensive and more honest about their alcohol use compared to the 15 hour clients who could be recommended for further treatment based on the extent of their alcohol abuse. The number of clients referred to DAE programs dropped by 2,133 admissions between FY'87 and FY'88, from 21,027 to 18,894 and continued to decline in FY'89. Another possible explanation is that fewer people are drinking and driving as a result of highly visible public information efforts to reduce drunk driving. Social drinkers would be most likely to heed this message, leaving the more seriously impaired drinking driver on the road. If, in fact more impaired clients are entering DAE programs, a lengthier, more intensive program model is particularly crucial to public safety. The evaluation of the driver alcohol education programs supports the contention that first offender drunk drivers require a lengthier program to change their attitudes and beliefs toward drinking and driving. The 40 hour DAE program model is accomplishing this goal.

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Table 1

A Comparison of Study Group Clients to Non-Completers and Non-Participants
15 Hour DAE Study

Client Demographics	Study Group N=204[a]	Non-Completers N=165[a]	Non-Participants N=94[a]
Sex			
Male	85.3 (174)	86.1 (142)	84.0 (79)
Female	14.7 (30)	13.9 (23)	16.0 (15)
Age at Admission (Mean)	32.0 (204)	29.9 (165)	27.4 (94)
19 or under	6.4 (13)	6.1 (10)	6.4 (6)
20-24	26.5 (54)	33.9 (56)	28.7 (27)
25-34	34.3 (70)	32.7 (54)	40.4 (38)
35-44	20.6 (42)	17.6 (29)	14.9 (14)
45-54	5.9 (12)	6.1 (10)	6.4 (6)
55 and over	6.4 (13)	3.6 (6)	3.2 (3)
Ethnic Background			
White	91.7 (187)	92.7 (153)	89.4 (84)
Black	2.5 (5)	4.2 (7)	6.4 (6)
Hispanic	1.5 (3)	1.8 (3)	1.1 (1)
Other	4.4 (9)	1.2 (2)	3.2 (3)
Marital Status			
Never Married	53.9 (110)	57.6 (95)	52.1 (49)
Married	26.5 (54)	22.4 (37)	20.2 (19)
Separated	5.4 (11)	7.3 (12)	9.6 (9)
Divorced	12.3 (25)	12.7 (21)	18.1 (17)
Widowed	2.0 (4)	— —	—
Employment Status			
Full Time	77.5 (158)	78.8 (130)	74.5 (70)
Part Time	5.9 (12)	5.5 (9)	3.2 (3)
Seeking	7.1 (16)	6.1 (10)	8.5 (8)
Not in Work Force	9.8 (22)	9.7 (16)	13.8 (13)
Education in Years	12.6 (204)	12.3 (165)	12.6 (91)
Usual Living Arrangements			
Parents	33.3 (67)	40.0 (64)	31.9 (29)
Spouse	37.3 (75)	25.6 (41)	22.0 (20)
Alone	15.9 (32)	12.5 (20)	17.6 (16)
Roommates	9.5 (19)	11.3 (18)	14.3 (13)
Other	4.0 (8)	10.6 (17)	14.3 (13)

Table 1 (Continued)

A Comparison of Study Group Clients to Non-Completers and Non-Participants
15 Hour DAE Study

Client Demographics	Study Group N=204[a]	Non-Completers N=165[a]	Non-Participants N=94[a]
Annual Income			
Less than $ 1,000	3.0 (6)	3.8 (6)	7.7 (7)
$ 1,000 - 4,999	5.5 (11)	6.3 (10)	12.1 (11)
5,000 - 9,999	16.4 (33)	15.6 (25)	15.4 (14)
10,000 - 14,999	14.9 (30)	20.6 (33)	16.5 (15)
15,000 - 19,999	18.9 (38)	23.8 (38)	18.7 (17)
20,000 - 29,999	23.9 (48)	15.0 (24)	15.4 (14)
30,000+	17.4 (35)	15.0 (24)	14.3 (13)
BAC (Mean)	.18 (133)	.17 (105)	
Refused	28.9 (58)	27.5 (44)	
Do Not Know	5.0 (10)	6.9 (11)	

[a]Demographic data not available for 22 clients

Table 2

Client Characteristics - FY'87 Driver

Alcohol Education Program Clients and 15-Hour Study Group

Client Demographics	FY'87 DAE Clients N=21,027	Study Group N=204[a]
Sex		
Male	86.4 (18,173)	85.3 (174)
Female	13.6 (2,854)	14.7 (30)
Age at Admission (Mean)	30.8 (21,027)	32.0 (204)
19 or under	8.0 (1,673)	6.4 (13)
20-24	26.0 (5,472)	26.5 (54)
25-34	37.1 (7,795)	34.3 (70)
35-44	17.5 (3,680)	20.6 (42)
45-54	7.3 (1,530)	5.9 (12)
55 and over	4.2 (877)	6.4 (13)
Ethnic Background		
White	91.2 (19,178)	91.7 (187)
Black	2.8 (593)	2.5 (5)
Hispanic	3.2 (669)	1.5 (3)
Other	2.8 (587)	4.4 (9)
Marital Status		
Never Married	56.1 (11,788)	53.9 (110)
Married	24.3 (5,109)	26.5 (54)
Separated	5.6 (1,173)	5.4 (11)
Divorced	13.0 (2,740)	12.3 (25)
Widowed	1.0 (217)	2.0 (4)
Employment Status		
Full Time	78.3 (16,454)	77.5 (158)
Part Time	5.7 (1,193)	5.9 (12)
Seeking	6.2 (1,312)	6.9 (14)
Not in Work Force	9.8 (2,068)	9.8 (20)
Education in Years	12.5 (21,027)	12.6 (204)
Usual Living Arrangements		
Parents	32.6 (6,541)	33.3 (67)
Spouse	29.9 (5,992)	37.3 (75)
Alone	15.3 (3,071)	15.9 (32)
Roommates	11.9 (2,377)	9.5 (19)
Other	10.4 (2,077)	4.0 (8)

Table 2 (Continued)
Client Characteristics - FY'87 Driver

Alcohol Education Program Clients and 15-Hour Study Group

Client Demographics	FY'87 DAE Clients N=21,027		Study Group N=204[a]	
Annual Income				
Less than $ 1,000	4.5	(905)	3.0	(6)
$ 1,000 - 4,999	7.1	(1,427)	5.5	(11)
5,000 - 9,999	12.8	(2,569)	16.4	(33)
10,000 - 14,999	20.6	(4,122)	14.9	(30)
15,000 - 19,999	20.3	(4,078)	18.9	(38)
20,000 - 29,999	20.1	(4,029)	23.9	(48)
30,000+	14.6	(2,926)	17.4	(35)
BAC (Mean)	.17	(13,790)	.18	(133)
Refused	25.8	(5,177)	28.9	(58)
Do Not Know	5.4	(1,091)	5.0	(10)

[a] Demographics not available for 3 clients.

Table 3

A Comparison of Study Group Clients to
Non-Completers and Non-Participants
40 Hour DAE Study

Client Demographics	Study Group N=302[a]	Not Completers N=194[a]	Non-Participants N=126
Sex			
Male	81.8 (247)	84.5 (164)	89.7 (113)
Female	18.2 (55)	15.5 (30)	10.3 (13)
Age at Admission (Mean)	31.3 (302)	30.1 (194)	31.4 (126)
19 or under	5.3 (16)	11.9 (23)	5.6 (7)
20-24	28.2 (85)	25.3 (49)	27.0 (34)
25-34	36.4 (110)	37.1 (72)	37.3 (47)
35-44	18.9 (57)	13.4 (26)	19.1 (24)
45-54	6.0 (18)	8.3 (16)	6.4 (8)
55 and over	5.3 (16)	4.1 (8)	4.8 (6)
Ethnic Background			
White	95.0 (287)	91.8 (178)	84.1 (106)
Black	2.0 (6)	4.6 (9)	7.9 (10)
Hispanic	0.3 (1)	1.6 (3)	2.4 (3)
Other	2.7 (8)	2.1 (4)	5.6 (7)
Marital Status			
Never Married	57.3 (173)	55.7 (108)	55.6 (70)
Married	21.9 (66)	20.6 (40)	16.7 (21)
Separated	6.6 (20)	8.3 (16)	10.3 (13)
Divorced	13.6 (41)	13.9 (27)	16.7 (21)
Widowed	0.7 (2)	1.6 (3)	0.8 (1)
Employment Status			
Full Time	78.8 (238)	78.4 (152)	65.1 (82)
Part Time	7.0 (21)	7.2 (14)	7.9 (10)
Seeking	8.0 (24)	7.7 (15)	15.1 (19)
Not in Work Force	6.3 (19)	6.7 (13)	11.9 (15)
Education in Years (Mean)	13.0 (302)	12.0 (194)	11.9 (126)
Less than grade 12	14.6 (44)	26.3 (51)	30.2 (38)
Grade 12	39.7 (120)	47.9 (93)	47.6 (60)
College or more	48.7 (147)	27.9 (54)	22.2 (28)

Table 3 (continued)

A Comparison of Study Group Clients to
Non-Completers and Non-Participants
40 Hour DAE Study

Client Demographics	Study Group N=302[a]	Not Completers N=194[a]	Non-Participants N=126
Usual Living Arrangements			
Parents	30.8 (93)	34.0 (66)	26.2 (33)
Spouse	29.1 (88)	30.4 (59)	32.5 (41)
Alone	14.6 (44)	14.4 (28)	11.9 (15)
Roommates	17.2 (52)	9.8 (19)	15.1 (19)
Other	8.3 (25)	11.3 (22)	14.3 (18)
Annual Income (Mean)	$19,373 (302)	$17,235 (194)	$16,214 (126)
Less than $ 1,000	5.0 (15)	4.1 (8)	7.9 (10)
$ 1,000 - 4,999	4.6 (14)	7.7 (15)	4.8 (6)
5,000 - 9,999	10.3 (31)	18.6 (36)	17.5 (22)
10,000 - 14,999	18.2 (55)	16.5 (32)	20.6 (26)
15,000 - 19,999	17.6 (53)	20.1 (39)	18.3 (23)
20,000 - 29,999	24.5 (74)	15.5 (30)	19.1 (24)
30,000+	19.9 (60)	17.5 (34)	11.9 (15)
BAC (Mean) [b]	.17 (160)	.17 (77)	.17 (36)
Refused	23.1 (53)	27.6 (34)	25.9 (15)
Do Not Know	7.0 (16)	9.8 (12)	12.1 (7)

[a] Demographic information not available for all clients.
[b] Information on blood alcohol content was based on MIS information for 229 clients who completed all surveys, 123 clients who completed some surveys, and 58 clients who did not participate.

Table 4

40-Hour Driver Alcohol Education Study

Client Characteristics - 1988 Driver
Alcohol Education Program Clients and 40-Hour Study Group

Client Demographics	FY'88 DAE Clients N=18,894		Study Group N=302[a]	
Sex*				
Male	86.3	(16,300)	81.8	(247)
Female	13.7	(2,594)	18.2	(55)
Age at Admission (Mean)	31.1	(18,894)	31.3	(302)
19 and under	6.9	(1,309)	5.3	(16)
20-24	24.3	(4,586)	28.2	(85)
25-34	39.2	(7,406)	36.4	(110)
35-44	17.8	(3,355)	18.9	(57)
45-54	7.7	(1,453)	6.0	(18)
55 and over	4.2	(785)	5.3	(16)
Ethnic Background*				
White	89.8	(16,965)	95.0	(287)
Black	2.8	(537)	2.0	(6)
Hispanic	3.4	(637)	0.3	(1)
Other	4.0	(755)	2.7	(8)
Marital Status				
Never Married	56.4	(10,662)	57.3	(173)
Married	23.0	(4,346)	21.9	(66)
Separated	5.8	(1,088)	6.6	(20)
Divorced	13.6	(2,560)	13.6	(41)
Widowed	1.3	(238)	0.7	(2)
Employment Status				
Full Time	77.5	(14,641)	78.8	(238)
Part Time	6.4	(1,215)	7.0	(21)
Seeking	6.8	(1,287)	8.0	(24)
Not in Work Force	9.3	(1,751)	6.3	(19)
Education in Years* (Mean)	12.3	(18,894)	13.0	(302)
Less than grade 12	21.9	(4,145)	14.6	(44)
Grade 12	45.8	(8,648)	39.7	(120)
College or more	32.3	(6,101)	45.7	(138)

Table 4 (continued)

40-Hour Driver Alcohol Education Study
Client Characteristics - 1988 Driver
Alcohol Education Program Clients and 40-Hour Study Group

Client Demographics	FY'88 DAE Clients N=18,894		Study Group N=302[a]	
Usual Living Arrangements				
Parents	31.5	(5,951)	30.8	(93)
Spouse	31.3	(5,922)	29.1	(88)
Alone	14.6	(2,757)	14.6	(44)
Roommates	12.7	(2,391)	17.2	(52)
Other	9.9	(1,872)	8.3	(25)
Annual Income (Mean)	$18,201.	(18,894)	$19,373.	(302)
Less than $ 1,000	4.9	(928)	5.0	(15)
$ 1,000 - 4,999	5.6	(1,060)	4.6	(14)
5,000 - 9,999	13.0	(2,451)	10.3	(31)
10,000 - 14,999	18.5	(3,494)	18.2	(55)
15,000 - 19,999	18.9	(3,577)	17.6	(53)
20,000 - 29,999	22.8	(4,309)	24.5	(74)
30,000+	16.3	(3,075)	19.9	(60)
BAC (Mean)[b]	.17	(7,274)	.17	(160)
Refused	26.8	(2,898)	23.1	(53)
Do Not Know	6.1	(657)	7.0	(16)

[a] Demographic information not available for 4 clients
[b] Percentages are calculated on the basis on MIS data available for 10,829 MISDAE clients and 229 clients in the evaluation sample.

* $P < .05$

Table 5

A Comparison of 15 and 40 Hour Study Groups

Demographics	40 Hour Study Group N=302[a]	15 Hour Study Group N=204[a]
Sex		
Male	81.8 (247)	85.3 (174)
Female	18.2 (55)	14.7 (30)
Age at Admission (Mean)	31.3 (302)	32.0 (204)
19 or under	5.3 (16)	6.4 (13)
20-24	28.2 (85)	26.5 (54)
25-34	36.4 (110)	34.3 (70)
35-44	18.9 (57)	20.6 (42)
45-54	6.0 (18)	5.9 (12)
55 and over	5.3 (16)	6.4 (13)
Ethnic Background		
White	95.0 (287)	91.7 (187)
Black	2.0 (6)	2.5 (5)
Hispanic	0.3 (1)	1.5 (3)
Other	2.7 (8)	4.4 (9)
Marital Status		
Never Married	57.3 (173)	53.9 (110)
Married	21.9 (66)	26.5 (54)
Separated	6.6 (20)	5.4 (11)
Divorced	13.6 (41)	12.3 (25)
Widowed	0.7 (2)	2.0 (4)
Employment Status		
Full Time	78.8 (238)	77.5 (158)
Part Time	7.0 (21)	5.9 (12)
Seeking	8.0 (24)	7.1 (14)
Not in Work Force	6.3 (19)	9.8 (20)
Education in Years (Mean)	13.0 (302)	12.6 (204)
Less than grade 12	14.6 (44)	17.9 (37)
Grade 12	39.7 (120)	45.4 (94)
College or more	45.7 (138)	36.7 (73)

Table 5 (continued)

A Comparison of 15 and 40 Hour Study Groups

Demographics	40 Hour Study Group N=302[a]		15 Hour Study Group N=204[a]	
Usual Living Arrangements*				
Parents	30.8	(93)	33.3	(67)
Spouse	29.1	(88)	37.3	(75)
Alone	14.6	(44)	15.9	(32)
Roommates	17.2	(52)	9.5	(19)
Other	8.3	(25)	4.0	(8)
Annual Income (Mean)	$19,373.	(302)	$18,575.	(201)
Less than $ 1,000	5.0	(15)	3.0	(6)
$ 1,000 - 4,999	4.6	(14)	5.5	(11)
5,000 - 9,999	10.3	(31)	16.4	(33)
10,000 - 14,999	18.2	(55)	14.9	(30)
15,000 - 19,999	17.6	(53)	18.9	(38)
20,000 - 29,999	24.5	(74)	23.9	(48)
30,000+	19.9	(60)	17.4	(35)
BAC (Mean) [b]	.17	(160)	.18	(133)
Refused	23.1	(53)	28.9	(58)
Do Not Know	7.0	(16)	5.0	(10)

* $p < .05$

[a]Demographic information unavailable for 4 clients in the 40 hour study group and 3 clients in the 15 hour study group.

[b]Percentages on blood alcohol content was calculated on the basis of MIS information available for 229 40-Hr clients and 201 15-Hr clients.

Table 6

Self-Reported Drinking Between Arrest and Program Completion For 15 and 40 Hour Study Groups[a]

	% Drinking		Number of Drinks Per Month	
30 Days Prior To:	15 Hour	40 Hour	15 Hour	40 Hour
Arrest	92%	99%	64.5	67.4
Intake	77%	86%	26.2	36.7
Week 8 (Completion for 15 Hour Group)	74%	84%	25.4	40.2
Week 15/20 (Completion for 40 Hour Group)	—	79%	—	33.5

[a]Clients who completed attitude/behavior change surveys. The N varies at arrest, intake, and program completion due to missing data for quantity/frequency items.

Table 7

Michigan Alcohol Screening Test (MAST) Scores

Categories (Scores)	15 Hour DAE N=182	40 Hour DAE N=286
Not Alcoholic (1-4)	53.3 (97)	46.5 (133)
Probable Alcoholic (5-6)	10.4 (19)	13.3 (38)
Alcoholic (7+)	36.3 (66)	40.2 (165)

Table 8
Paired T-Test Comparisons Between
Intake and Program Completion for Attitude and Belief Scales
15 Hour DAE Study Group

Attitude/Belief Scales[a]	Intake Mean	Program Completion Mean	t
Beliefs About Consequences of Drinking and Driving ↓ (N=207)	20.7	21.4	-1.19
Attitude Toward Drinking & Driving ↓ (N=207)	26.6	25.8	1.32
Beliefs About Friends' Attitude Toward Drunk Driving ↓ (N=207)	13.8	13.8	0.09
Attitude Toward 6+ Drinks ↓ (N=207)	22.9	20.6	4.02***
Attitude Toward 5 Drinks in 2 Hours ↓ (N=207)	7.9	7.6	1.00
Attitude Toward Drinking Ginger Ale ↑ (N=207)	21.4	22.7	3.86***
Attitude Toward Only 1 Drink ↑ (N=207)	20.0	20.3	0.80
Attitude Toward Being High ↓ (N=207)	14.0	13.5	1.13
Attitude Toward AA ↑ (N=207)	41.1	41.8	1.05

*** $p < .001$

[a] The arrow indicates the desired direction of the attitude change for each scale. A "↑" shows a more positive attitude/belief and, therefore, a higher mean score is desired. A "↓" shows a less positive attitude/belief and a lower mean score is desired. Items comprising each scale are listed in the Appendix.

Table 9
Paired T-Test Comparisons Between
Intake and Program Completion for Attitude and Belief Scales
40 Hour DAE Study Group

Attitude/Belief Scales[a]	Intake Mean	Program Completion Mean	t
Beliefs About Consequences of Drinking and Driving ↓ (N=283)	25.7	21.1	7.71***
Beliefs About Drinking & Driving ↓ (N=258)	30.7	27.4	5.73***
Beliefs About Friends' Attitude Toward Drunk Driving ↓ (N=291)	15.8	14.7	2.74
Attitude Toward 6+ Drinks ↓ (N=273)	24.5	22.6	3.99***
Attitude Toward 5 Drinks in 2 Hours ↓ (N=279)	9.5	8.2	4.45***
Attitude Toward Drinking Ginger Ale ↑ (N=282)	21.1	22.2	4.31***
Attitude Toward Only 1 Drink ↑ (N=283)	20.5	20.0	-1.42
Attitude Toward Being High ↓ (N=264)	15.5	15.8	-0.62
Attitude Toward AA ↑ (N=245)	37.4	39.8	3.11*
Attitude Toward MADD ↑ (N=270)	21.4	22.5	3.41**

* $p < .05$
** $p < .01$
*** $p < .001$

[a] The arrow indicates the desired direction of the attitude change for each scale. A "↑" shows a more positive attitude/belief and, therefore, a higher mean score is desired. A "↓" shows a less positive attitude/belief and a lower mean score is desired.
Items comprising each scale are in the Appendix.

Table 10
Comparison of Significant Differences Between
Weeks 2, 8, and 15/20 for 40 Hour Study Group

Attitude/Belief Scales[e]	Survey Week		
	Week 2 Mean	Week 8 Mean	Week 15/20 Mean
Beliefs About Consequences of ↓ Drinking and Driving (N=283)	25.7	23.3	21.1***[a]
Beliefs About Drinking and ↓ Driving (N=258)	30.7	28.6	27.4***[b]
Beliefs About Friends' ↓ Attitude Toward Drunk Driving (N=291)	15.8	15.4	14.7
Attitude Toward 6+ Drinks ↓ (N=273)	24.5	24.2	22.6***[c]
Attitude Toward 5 Drinks ↓ in 2 Hours (N=279)	9.5	8.3	8.2***[b]
Attitude Toward Ginger Ale ↑ (N=282)	21.1	22.1	22.2***[b]
Attitude Toward Only 1 Drink ↑ (N=283)	20.5	20.1	20.0
Attitude Toward Being High ↓ (N=264)	15.5	16.3	15.8
Attitude Toward AA ↑ (N=245)	37.4	39.1	39.8*[d]
Attitude Toward MADD ↑ (N=270)	21.4	22.3	22.5**[d]

* $p < .05$
** $p < .01$
*** $p < .001$

[a] Significant change between all weeks.
[b] Significant change between weeks 2 and 8.
[c] Significant change between weeks 8 and 20.
[d] Significant change between weeks 2 and 20 only.
[e] Arrow indicates the desired direction of the attitude change for each scale. A "↑" shows a more positive attitude/belief and, therefore, a higher mean score is desired. A "↓" shows a less positive attitude/belief and a lower mean score is desired.

Appendix

1. Mean Scores and T-test for Scales and Items - 40 Hour Study Group
2. Mean Scores and T-test for Scales and Items - 15 Hour Study Group

Mean Scores and T-test for Scales and Items - 40 Hour Study Group

40-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 15/20 for Attitude & Belief Scales and Items

Scale Items	Week 2 Mean[a]	Week 20 Mean[a]	t[b]
Attitude Toward Drinking Ginger Ale (N=282)	21.1	22.2	4.31***
Drinking Ginger Ale Unlikely	3.6	4.3	4.78***
Drinking Ginger Ale Good	6.0	6.0	-0.32
Drinking Ginger Ale Harmful	6.3	6.4	0.80
Drinking Ginger Ale Pleasant	5.1	5.5	3.49**
Attitude Toward 6+ Drinks (N=273)	24.5	22.6	3.99***
6+ drinks Harmful	2.4	2.3	0.38
6+ drinks Good Time	3.5	3.2	1.84
6+ drinks Unlikely	2.9	2.8	0.74
6+ drinks In Control	3.2	2.6	4.82***
6+ drinks Injure Myself	4.8	4.3	4.09***
6+ drinks Good	2.2	2.2	-0.37
6+ drinks Drunk	2.8	2.6	2.18
6+ drinks Pleasant	2.8	2.6	2.11
Attitude Toward Being High (N=264)	15.5	15.8	-0.62
Being high Pleasant	4.4	4.1	2.53*
Being high Unlikely	3.5	3.7	-1.00
Being drunk Good	1.8	1.8	-0.79
Being high Harmful	3.1	3.3	-0.87
Being high Good	2.7	2.9	-1.86
Attitude Toward 5 Drinks in 2 Hours (N=279)	9.5	8.2	4.45***
5 drinks in 2 hours Harmful	2.2	2.0	1.88
5 drinks in 2 hours Drive Good	2.3	1.9	4.01***
5 drinks in 2 hours Unlikely	2.8	2.2	5.11***
5 drinks in 2 hours Pleasant	2.2	2.1	0.92
Attitude Toward Only 1 Drink (N=283)	20.5	20.0	-1.42
Only 1 drink Good	5.6	5.4	-1.66
Only 1 drink Pleasant	5.2	5.1	-0.64
Only 1 drink Harmful	5.8	5.3	-4.04***
Only 1 drink Unlikely	4.0	4.3	2.13

40-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 15/20 for Attitude & Belief Scales and Items
(continued)

Scale Items	Week 2 Mean[a]	Week 20 Mean[a]	t[b]
Attitude Toward AA (N=245)	37.4	39.8	3.11*
AA Pleasant	3.0	3.1	0.72
Don't belong in AA	2.6	2.7	1.23
Self help Beneficial	4.1	3.7	-2.35
AA regularly is Good	3.2	3.1	-0.41
Familiar with 12 Steps of AA	2.8	4.5	10.58***
Feel uncomfortable at AA Meetings	4.2	4.2	0.26
Plan to attend AA after program	2.8	2.7	-0.38
AA leaders make me uncomfortable	4.4	5.0	3.96***
Attending AA regularly is unlikely	2.7	2.7	-0.70
I would attend AA even if not required	2.5	2.7	1.65
Attending AA regularly is Harmful	5.2	5.4	1.67
Attitude Toward Drinking & Driving (N=258)	30.7	27.4	5.73***
Can drive just as safe with 1 or 2 drinks as without	3.9	3.4	4.16***
Experienced driver not bothered by 2 drinks	3.0	2.6	2.72
Some people drink and drive safely	3.2	2.8	2.84*
Some people can drive O.K. after 4 drinks	2.8	2.2	4.17***
Would drive drunk if I had to	1.9	1.8	1.72
Everyone drinks and drives	3.1	3.2	-0.54
DUIL arrest bad luck	3.2	2.9	3.00*
DUIL penalties too severe	3.8	3.3	4.04***
Can't promise not to drink and drive	3.1	2.8	2.28
Drinking & driving part of life--can't change it	2.5	2.4	1.36
Beliefs About Consequences of Drinking and Driving (N=283)	25.7	21.1	7.71***
5 drinks in 2 hours-Drive Safely	3.8	2.9	6.21***
5 drinks in 2 hours-Stopped by Police	4.7	3.7	6.03***
5 drinks in 2 hours-Be in Control	3.7	2.8	6.58***
5 drinks in 2 hours-Minor Accident	5.1	4.4	4.42***
5 drinks in 2 hours-Drive Drunk	3.4	3.1	2.47
5 drinks in 2 hours-Drive Recklessly	4.9	4.2	5.29***

40-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 15/20 for Attitude & Belief Scales and Items
(continued)

Scale Items	Week 2 Mean[a]	Week 20 Mean[a]	t[b]
Beliefs About Friends' Attitude Toward Drunk Driving (N=291)	15.8	14.7	2.74
5 drinks and friends disapprove	4.1	3.8	1.73
5 drinks and friends expect me to drive	3.4	3.2	1.00
5 drinks and friends stop me from driving	4.4	3.9	3.52**
5 drinks and friends want me to ask them to drive	4.0	3.8	1.41
Attitude Toward MADD (N=270)	21.4	22.5	3.41**
Familiar with MADD	5.4	6.2	5.78***
MADD is good	5.9	5.8	-0.88
MADD is helpful	5.8	5.7	-0.38
MADD is beneficial	4.4	4.8	3.33**

[a] The higher the item and scale scores the more positive the attitude toward the behavior indicated in the scale.

[b] Bonferroni procedure wise error rate adjustment.

* $p < .05$
** $P < .01$
*** $p < .001$

A "-" sign indicates change in an unexpected direction.

Mean Scores and T-test for Scales and Items - 15 Hour Study Group

15-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 8 for Attitude & Belief Scales and Items

Scale Items	Intake Mean[a]	Program Completion Mean[a]	t[b]
Attitude Toward Drinking Ginger Ale (N=207)	21.4	22.7	3.86***
Drinking Ginger Ale Unlikely	4.1	4.3	1.14
Drinking Ginger Ale Good	5.9	6.3	3.03**
Drinking Ginger Ale Harmful	6.1	6.4	2.31
Drinking Ginger Ale Pleasant	5.3	5.6	2.47
Attitude Toward 6+ Drinks (N=207)	22.9	20.6	4.02***
6+ drinks Harmful	2.2	2.0	1.56
6+ drinks Good Time	3.5	3.1	2.68
6+ drinks Unlikely	3.1	2.4	4.47**
6+ drinks In Control	2.9	2.6	1.01
6+ drinks Injure Myself	4.2	3.9	1.53
6+ drinks Good	2.0	1.8	1.28
6+ drinks Drunk	2.6	2.3	1.45
6+ drinks Pleasant	2.5	2.4	0.87
Attitude Toward Being High (N=207)	14.0	13.5	1.13
Being high Pleasant	3.8	3.8	0.16
Being high Unlikely	3.4	3.1	1.68
Being drunk Good	1.6	1.5	1.33
Being high Harmful	2.8	2.6	1.20
Being high Good	2.3	2.5	-1.12
Attitude Toward 5 Drinks in 2 Hours (N=207)	7.9	7.6	1.00
5 drinks in 2 hours Harmful	1.7	2.0	-2.88*
5 drinks in 2 hours Drive Good	1.9	1.8	1.29
5 drinks in 2 hours Unlikely	2.4	2.1	1.05
5 drinks in 2 hours Pleasant	1.9	1.7	1.56
Attitude Toward Only 1 Drink (N=207)	20.0	20.3	0.80
Only 1 drink Good	5.6	5.5	-0.83
Only 1 drink Pleasant	5.2	5.0	-0.71
Only 1 drink Harmful	5.3	5.3	0.11
Only 1 drink Unlikely	4.0	4.6	3.15**

15-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 8 for Attitude & Belief Scales and Items
(continued)

Scale Items	Intake Mean[a]	Program Completion Mean[a]	t[b]
Attitude Toward AA (N=207)	41.1	41.8	1.05
AA Pleasant	3.3	3.5	2.02
Don't belong in AA	2.9	2.7	-1.36
Self help Beneficial	4.7	4.6	-0.89
AA regularly is Good	3.4	3.6	1.26
Know 12 Steps of AA	2.6	3.2	4.32***
Feel uncomfortable at AA Meetings	4.8	4.6	-1.35
Plan to attend AA after program	2.8	3.0	1.16
AA leaders make me uncomfortable	5.2	5.0	-1.07
Attending AA regularly is unlikely	3.1	2.9	-1.20
I would attend AA even if not required	2.9	3.1	2.21
Attending AA regularly is Harmful	5.5	5.5	0.22
Attitude Toward Drinking & Driving (N=207)	26.6	25.8	1.32
Can drive just as safe with 1 or 2 drinks as without	3.2	2.9	1.90
Experienced driver not bothered by 2 drinks	2.6	2.4	1.13
Some people drink and drive safely	2.4	2.5	-0.81
Some people can drive O.K. after 4 drinks	3.2	2.8	2.27
Would drive drunk if I had to	1.7	1.5	1.54
Everyone drinks and drives	2.6	2.6	-0.44
DUIL arrest bad luck	2.4	2.5	-1.31
DUIL penalties too severe	3.3	3.1	1.78
Can't promise not to drink and drive	3.4	3.6	-1.24
Drinking & driving part of life—can't change it	1.9	1.9	0.44
Beliefs About Consequences of Drinking and Driving (N=207)	20.7	21.4	-1.19
5 drinks in 2 hours-Drive Safely	2.6	2.8	-1.00
5 drinks in 2 hours-Stopped by Police	3.5	3.8	-1.64
5 drinks in 2 hours-Be in Control	2.8	2.8	-0.13
5 drinks in 2 hours-Minor Accident	4.2	4.2	0.11
5 drinks in 2 hours-Drive Drunk	3.2	3.4	-1.27
5 drinks in 2 hours-Drive Recklessly	4.3	4.3	-1.19

15-Hour Driver Alcohol Education Study
Means and Paired T-Test Comparisons Between
Week 2 and Week 8 for Attitude & Belief Scales and Items
(continued)

Scale Items	Intake Mean[a]	Program Completion Mean[a]	t[b]
Beliefs About Friends' Attitude Toward Drunk Driving (N=207)	13.8	13.8	0.09
5 drinks and friends disapprove	3.4	3.5	-1.24
5 drinks and friends expect me to drive	2.9	2.8	1.36
5 drinks and friends stop me from driving	3.6	3.8	-1.11
5 drinks and friends want me to ask them to drive	3.9	3.7	1.18

[a] The higher the item and scale scores the more positive the attitude toward the behavior indicated in the scale.

[b] Bonferroni procedure wise error rate adjustment.

* p < .05
** P < .01
*** p < .001

A "-" sign indicates change in an unexpected direction.